

REMARKS

Applicants acknowledge with appreciation the allowance of claim 158. Claims 142 and 150 are amended. Claims 142, 144, 146-148, 150-152, and 154-156 are pending in the present application. Claims 143, 145, 149, 153, 157, 159, and 160 were previously cancelled.

Claims 142, 144, and 146-148 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. patent 5,714,203 (Schellenberger et al.) in view of U.S. patent 5,988,186 (Ward et al.). Applicants respectfully traverse this rejection.

Claim 142, as amended, defines a conditioning solution and recites, in part, “a surface passivation agent comprising ascorbic acid, wherein said conditioning solution is substantially free of water, and said fluorine source, said complementary acid, said non-aqueous solvent and said passivation agent are present in said conditioning solution in concentrations suitable for the selective removal of said residues relative to any exposed metal on said semiconductor substrate.”

The subject matter of claims 142, 144, 146-148 would not have been obvious over Schellenberger et al. in view of Ward et al. Indeed, the Office Action fails to establish a prima facie case of obviousness. To establish a prima facie case of obviousness, three requirements must be met: (1) some suggestion or motivation, either in the references themselves or in the knowledge of a person of ordinary skill in the art, to modify the reference or combine reference teachings; (2) a reasonable expectation of success; and (3) the prior art reference (or references when combined) must teach or suggest all the claim limitations. More importantly, the teaching or suggestion to make the claimed combination and the reasonable expectation for success must both be found in the prior art and not based on Applicant’s disclosure. M.P.E.P. § 2142. See, e.g., In re Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (CCPA 1974). There is no motivation to combine Schellenberger et al. with Ward et al. to achieve the claimed invention because their objects are exclusive of one another. Moreover, even when taken in combination, Schellenberger

et al. and Ward et al. do not teach or suggest all the claim limitations of the claimed invention.

Schellenberger et al. relates to “a procedure for cleanly drying surfaces of materials, . . . wherein a substrate is dipped in a liquid bath and its surfaces are dried as it is separated from the liquid, such as by directing a gas over the liquid surface, the gas being soluble in the liquid and lowering the surface tension of the liquid.” (Col. 1, lines 10-17). Ward et al. relates to “improved aqueous stripping compositions comprising polar solvents and organic or inorganic amines by providing a corrosion inhibitor which is gallic acid or a gallic acid ester.” (Col. 1, lines 21-24). The crux of Schellenberger et al. is the drying of a silicon surface without metal and/or other recontamination of the silicon surface. (Col. 2, lines 21-34). By contrast, Ward et al. teaches a stripping composition with no corrosive effects on the substrate by use of a corrosion inhibitor. (Col. 1, lines 23-24; col. 55-63). The process of preventing recontamination of a substrate surface during drying by lowering the surface tension of the cleaning liquid, as in Schellenberger et al., is different from the process of preventing corrosion by a chemical reaction between corrosion agents and metal/silicon substrates, as in Ward et al. These two objects of the respective references are mutually exclusive of one another, as reflected by the two differently disclosed chemical compositions. Although both inventions are directed to cleaning techniques, their goals are divergent and without the benefit of improper hindsight based on the present application disclosure, there would have been no motivation to combine Schellenger et al. and Ward et al.

Assuming, arguendo, that there is a motivation to combine the references (which there is not), neither Schellenberger et al. nor Ward et al. teach “a surface passivation agent comprising ascorbic acid.” Schellenberger et al. teaches “an aqueous HF solution that can contain “organic acids (such as formic acid, acetic acid and citric acid)” (col. 3, lines 57-58), but is silent on the use of ascorbic acid as a surface passivation agent. Therefore, Schellenberger et al., fails to teach the conditioning solution of the claimed invention. Ward et al. recites a stripping and cleaning composition “comprising an admixture of a polar solvent and an organic or inorganic amine.” (Col. 4, lines 18-20). Ward et al. is

entirely silent on the use of acids, much less the use of ascorbic acid as in the claimed invention.

Since there is no motivation to combine the references and, even if combined, the references do not teach or suggest each and every limitation of independent claim 142, the subject matter of this claim, as well as of dependant claims 144 and 146-148, would not have been obvious thereover. Applicants respectfully request that the 35 U.S.C. § 103(a) rejection of claims 142, 144, and 146-148 over Schellenberger et al. and Ward et al. be withdrawn.

Claims 150-152 and 154-156 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Schellenberger et al. in view of Ward et al. and further in view of U.S. patent 6,248,704 (Small et al.). Applicants respectfully traverse this rejection.

Claim 150, as amended, defines a conditioning solution comprising “ascorbic acid or ethylene diamine tetraacetic acid acting as a surface passivation agent, wherein said conditioning solution substantially free of water.” For the same reasoning discussed above in relation to the patentability of claim 142 over Schellenberger et al. and Ward et al., these references do not teach or suggest this limitation of claim 150. Small et al. fails to disclose anything to cure the deficiencies of Schellenberger et al. and Ward et al. in this respect. Small et al., in fact, teaches away from the claimed method and is, therefore, an improper reference for use in rejecting the claims under 35 U.S.C. § 103(a). Small et al. teaches a cleaning composition that comprises “from about 20 percent by weight to about 50 percent by weight water.” (Col. 5, lines 36-37). Therefore, Small et al. teaches away from a conditioning solution that is substantially free of water.

Since Schellenberger et al. and Ward et al. do not teach or suggest each and every limitation of independent claim 150 and Small et al. is an improper reference for rejection of claim 150, the subject matter of this claim, as well as of dependant claims 151, 152 and 154-156, would not have been obvious thereover. Applicants respectfully request that the 35 U.S.C. § 103(a) rejection of claims 150-152 and 154-156 over Schellenberger et al., Ward et al. and Small et al. be withdrawn.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. According, the Examiner is respectfully requested to pass this application to issue.

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Respectfully submitted,

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